

3/12/07 RCF

Application No.: 10/802,682
Amendment Dated: January 12, 2007
Reply to Office Action Dated: July 12, 2006

AMENDMENTS TO THE CLAIMS

LISTING OF CLAIMS:

Claim 1 (Currently amended). An enzyme having alcohol and aldehyde dehydrogenase activity comprising an isolated polypeptide encoded by a DNA molecule according to SEQ ID NO: 4 or encoded by a DNA sequence, which hybridizes under stringent hybridization and stringent washing conditions ~~standard conditions~~ with said DNA molecule.

Claim 2 (Currently amended). An enzyme of claim 1 having alcohol and aldehyde dehydrogenase activity, wherein the isolated polypeptide is a chimeric polypeptide including a combination of at least two amino acid sequences each of said sequences being selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 8, and amino acid sequences encoded by DNA sequences hybridizing under stringent hybridization and stringent washing conditions ~~standard conditions~~ with DNA molecules according to SEQ ID: 4 or 1.

Claim 3 (Previously presented). An enzyme of claim 1, wherein the enzyme includes at least two recombinant polypeptides in the form of a homodimer or a heterodimer.

Claims 4-8 (Cancelled).

Claim 9 (Previously presented). An isolated enzyme produced by expression of vector pSSB103R.

Claims 10-19 (Cancelled).

Claim 20 (Original). A process for producing an aldehyde product from a substrate which comprises incubating a reaction mixture containing an enzyme of claim

1 and said substrate wherein said substrate is selected from the group consisting of n-propanol, isopropanol, D-sorbitol and D-mannitol, and recovering the aldehyde product.

Claim 21 (Original). A process for producing a ketone product from a substrate which comprises incubating a reaction mixture containing an enzyme of claim 1 and said substrate wherein said substrate is selected from the group consisting of n-propanol, isopropanol, D-sorbitol and D-mannitol, and recovering the ketone product.

Claim 22 (Original). A process for producing a carboxylic acid product from a substrate which comprises incubating a reaction mixture containing an enzyme of claim 1 and said substrate wherein said substrate is selected from the group consisting of L-sorbose, D-glucose, D-fructose and L-sorbose, and recovering the carboxylic acid product.

Claims 23-24 (Cancelled).

Claim 25 (Previously presented). A process for producing 2-keto-L-gulonic acid which comprises:

(a) incubating a reaction mixture containing a substrate selected from the group consisting of D-sorbitol and L-sorbose, and an enzyme according to claim 1, and

(b) converting the substrate to 2-keto-L-gulonic acid.

Claims 26-27 (Cancelled).

Claim 28 (Original). A process for the production of L-ascorbic acid from 2-keto-L-gulonic acid comprising obtaining 2-keto-L-gulonic acid by a process of claim 25 and transforming the 2-keto-L-gulonic acid into L-ascorbic acid.

Claim 29 (Previously presented). An enzyme according to claim 1 wherein the amino acid sequence is SEQ ID NO: 8.

Claim 30 (Currently amended). An isolated enzyme having alcohol and aldehyde dehydrogenase activity encoded by a recombinant expression vector comprising a DNA sequence of SEQ ID NO: 4 or a DNA sequence which hybridizes under stringent hybridization and stringent washing conditions ~~standard conditions~~ with said DNA molecule, wherein the DNA sequence is functionally linked to one or more genetic control sequences and is capable of expression of an enzyme including at least one recombinant polypeptide having alcohol and aldehyde dehydrogenase activity.

Claim 31 (Currently amended). An isolated enzyme having alcohol and aldehyde dehydrogenase activity encoded by a recombinant expression vector comprising a DNA sequence of SEQ ID NO: 4 or a DNA sequence which hybridizes under stringent hybridization and stringent washing conditions ~~standard conditions~~ with said DNA molecule.